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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,825	09/16/2003	Harvey L. Berger	12-1199	8905

7590 11/15/2006

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EXAMINER

EJAZ, NAHEED

ART UNIT	PAPER NUMBER
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2611

DATE MAILED: 11/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/666,825

Applicant(s)

BERGER ET AL.

Examiner

Naheed Ejaz

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09/16/2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. Figures 1A-1C should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g) (Specification, page # 4, paragraph # 0010). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Abstract

2. The abstract of the disclosure is objected to because of the following: delete the title from the Abstract. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Regarding claim 1, it is not clear what 'zero level sensing threshold' (lines 6-7) is & how is it determined? (in the light of Specification). Clarification is required.

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6. Refer to claim 2, it recites 'each UWB pulse' (line 2) & 'each negative UWB pulse' (line 3). Are these UWB pulses the same which are recited in the claim 1? If they are then replace 'each UWB pulse' (line 2) by ---each said UWB pulse--- & 'each negative UWB pulse' (line 3) by ---each negative UWB pulse---.

7. As per claim 5, it recites, 'each UWB pulse time slot' (line 2) if it's the same slot mentioned in claim 4 then replace 'each UWB pulse time slot' (line 2) by ---each said UWB pulse time slot---.

8. Claims 3 & 4 are also rejected under 35 U.S.C 112, second paragraph since they are based on rejected claims.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Santhoff et al. (6,947,492) (hereinafter, Santhoff).

11. As per claim 1, Santhoff discloses, 'encoding binary data of one value type as positive UWB pulses and binary of the other value type as negative UWB pulses' (col.1, lines 60-67, col.2, lines 1-4) (it is noted that in the mentioned columns and lines Santhoff is teaching frame having positive and negative data windows and the encoding

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of the transmission is being achieved by positioning the positive pulse within the positive data window and negative pulse within the negative data window (figure 3, col.6, lines 59-67, col.7, lines 1-2) which is equivalent to the claim limitations). Furthermore, Santhoff detects the bipolar pulse (positive and negative pulses) sequences based on the positive and complimentary negative windows (col.8, lines 9-19) which is detecting the positive and negative pulses by their positions in the positive and negative windows of the frame and based on their positions, error is being detected with respect to positive and it's corresponding negative pulse (figures 3 & 4, col.7, lines 49-53, col.8, lines 9-40) which is considered to be equivalent to the claim limitations of 'detecting the presence of positive and negative UWB pulses using a zero level sensing threshold, thereby increasing immunity to noise' since it is not clear from the Specification what 'zero level sensing threshold' is and how it's been determined?

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Santhoff et al. (6,947,492), as applied to claim 1, in view of Pergande (6,512,474).

14. Regarding claim 2, Santhoff teaches all the limitations in the previous claim on which claim 1 depends but he fails to disclose UWB pulse which includes carrier signal.

Pergande discloses, 'each UWB pulse includes a carrier signal; and

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each negative UWB pulse has its carrier phase inverted' (see figure 2, Abstract, col.1, lines 56-57, col.3, lines 53-64).

It would have been obvious to one of ordinary skill in the art, at the time of invention, to implement the teachings of Pergande into Santhoff in order to make sure that energy is in the desired transient electromagnetic fields by inverting the phase as taught by Pergande (col.3, lines 53-64).

15. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Santhoff et al. (6,947,492) in view of Pergande (6,512,474), as applied to claims 1 & 2 above, and further in view of Iiyama et al. (5,949,826).

16. Regarding claim 3, Santhoff is correcting the error by detecting the positions of the positive and negative pulses in the positive and negative data windows (col.7, lines 49-53, col.8, lines 9-29) and the correction of error with respect to the positive and negative pulses (col.9, lines 1-23) which reads on claim limitations of 'adjusting the polarity of the unidirectional signal'.

Santhoff fails to disclose rectifying and filtering of UWB carrier signal.

Pergande teaches that in order to generate an ultra wideband signal different tones with respect to frequencies are combined by the amplifiers which use the phase inverted signal 202 (figure 2) and in order to produce the desired signal with excellent fidelity (col.3, lines 53-64, col.4, lines 28-49) amplifier needs to sense if the carrier signal phase is inverted or not in order to check if additional tone needs to be combined in order to improve the fidelity of the wideband signal (col.4, lines 38-49), which reads on claim limitations of 'sensing whether the carrier phase is inverted or not'.

Furthermore, Pergande discloses filtering of UWB carrier signal pulse in order to generate an ultra wideband signal (col.2, lines 24-29 & 38-42) (claimed filtering the UWB carrier signal pulse to provide a unidirectional signal).

It would have been obvious to one of ordinary skill in the art, at the time of invention, to implement the teachings of Pergande into Santhoff in order to make sure that energy is in the desired transient electromagnetic fields by inverting the phase as taught by Pergande (col.3, lines 53-64) thus improve the fidelity of wideband signal (col.4, lines 38-39).

Pergande does not teach rectifying of the UWB carrier signal.

Iiyama teaches a rectification circuit in order to detect the envelop of the effective carrier corresponding components from the signal (figure 17, element 4040, col.2, lines 1-7) (claimed rectifying the carrier signal pulse).

It would have been obvious to one of ordinary skill in the art, at the time of invention, to implement the teachings of Iiyama into Santhoff and Pergande in order to detect an envelope of the effective carrier from the received signal as taught by Iiyama (col.2, lines 1-7 & 64-67, col.3, lines 1-6) thus increase the system reliability.

17. Claims 4 & 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Santhoff et al. (6,947,492) in view of Pergande (6,512,474) and Iiyama et al. (5,949,826), as applied to claims 1-3 above, and further in view of Balachandran et al. (7,082,153) (hereinafter, Balachandran).

18. Refer to claims 4 & 5, Santhoff, Pergande and Iiyama teach all the limitations in the previous claims on which claim 4 depends but they fail to disclose assigning portions of each time slot to respective communication channels

Santhoff teaches, 'the UWB pulses are generated in predetermined time slots' (figures 3 & 10, col.7, lines 11-22) and 'each UWB pulse time slot has two half time slots' (col.7, lines 11-22) (it is noted that Santhoff teaches in the mentioned column and lines that number of time slots can be varied hence reads on claim limitations of having two half time slots).

Balachandran teaches, 'the method comprises assigning portions of each time slot to respective communication channels, whereby data signals pertaining to multiple communication channels are transmitted in a single time slot' (see Abstract, col.2, lines 33-47). Furthermore, Balachandran discloses, 'data signals pertaining to first and second communication channels are encoded in the first and second halves, respectively, of each UWB pulse time slot' (figure 6, col.8, lines 34-62).

It would have been obvious to one of ordinary skill in the art to implement the teachings of Balachandran into Santhoff, Pergande and Iiyama in order to guarantee high spectrum efficiency and reduce the risk of inter-pulse interference by maximizing the average separation between modulated pulses to achieve greater resistance to large delay spreads and randomizes the time offset between adjacent pulses to provide greater immunity to multiple access interference as taught by Balachandran (col.3, lines 32-43) thus increase the bandwidth efficiency of UWB communications systems.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Romano et al. (2004/0222865) teach method and apparatus for modulating a pulse signal with a bit stream (see figures 1C & 2).

Contact Information

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Naheed Ejaz whose telephone number is 571-272-5947. The examiner can normally be reached on Monday - Friday 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Naheed Ejaz

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N.E.

11/9/2006

Examiner

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PANKAJ KUMAR
PRIMARY PATENT EXAMINER